

Sequence Listing

<110> Robert D. Klein
Arnon Rosenthal
Heidi S. Phillips
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<120> GFRalpha3 and its Uses

<130> GENENT.065A

<140> US 09/272,835

<141> 1999-03-19

<150> US 60/079,124

<151> 1998-03-23

<150> US 60/081,569

<151> 1998-04-13

<160> 25

<210> 1

<211> 387

<212> DNA

<213> Mus musculus

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tcccgtctgc tccagaagag gtcttagaag tgagggctgt gacccttccg 150
atcctgagcg gctagttttc aaacctccct tgcccctgct tccttctggc 200
tcaggctgct cctccttagg actttgtggg tccagttttg ccttctgttc 250
tgatggtgat tagcggtca cctccagcgc ttcttctgt ttccaggac 300
caccagagg ctaaggaatc agtcattccc tgttgcttc tccaggaagg 350
caggctaagg gttctgaggt gactgagaaa aatgttt 387

<210> 2

<211> 353

<212> DNA

<213> Mus musculus

<400> 2

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tggtgctgtc gttgtggctg ccacttgag caggaaactc ccttgccaca 150
gagaacaggt ttgtgaacag ctgtaccag gccagaaaga aatgcgaggc 200

taatcccgt tgcaaggctg cctaccagca cctgggctcc tgcacctcca 250
gttaagcagg ccgctgccct tagaggagtc tgccatgtct gcagactgcc 300
tagaggcagc agaacaactc aggaacagct ctctgataga ctgcagggtgc 350
cat 353

<210> 3
<211> 498
<212> DNA
<213> Mus musculus

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catccactgt cacatcccc agtgggactc cgacaaatgt gaagaacagc 150
tggaagagac catcaaaaac tgctgtctg cagcagagga caagaagctt 200
aaatccgtcg ccttcccacc gttccccagt ggcagaaact gcttcccca 250
acagacggcc gcccagggtga ccctcaaggc catctcggct cacttcgacg 300
actcgagctc gtctctgctg aagaatgtgt acttctgct cttcgacagc 350
gagacatcgg catctacgtg caggagatgg ccaaactgga caccaagtag 400
ctctctccag tggcggcgaa ggaggaggat cggcgtgacg tcacaagagc 450
gggggtttta ttttttaciaa ggattgcaga aggggtgacgg ggcatggg 498

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<211> 1935
<212> DNA
<213> Mus musculus

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caggcagagc gctgtcgcac ccgggcgctc caccgccaat ggggctctcc 100
tggaagccgc gacctccact gctgatgatc ctgctactgg tgctgtcggt 150
gtggctgcc cttggagcag gaaactccct tgccacagag aacaggtttg 200
tgaacagctg taccagggcc agaaagaaat gcgaggctaa tcccgtttgc 250
aaggctgcct accagcacct gggctcctgc acctccagtt taagcaggcc 300
gctgccctta gaggagtctg ccatgtctgc agactgccta gaggcagcag 350
aacaactcag gaacagctct ctgatagact gcaggtgcc tggcgcatg 400
aagcaccaag ctacctgtct ggacatttat tggaccgttc acctgcccg 450
aagccttggt gactacgagt tggatgtctc acctatgaa gacacagtga 500

ccagcaaacc ctggaaaatg aatcttagca agttgaacat gctcaaacca 550
 gactcggacc tctgcctcaa atttgctatg ctgtgtactc ttcacgacaa 600
 gtgtgaccgc ctgcgcaagg cctacgggga ggcatgctca gggatccgct 650
 gccagcgcca cctctgccta gccagctgc gctccttctt tgagaaggca 700
 gcagagtcctc acgctcaggg tctgctgctg tgtccctgtg caccagaaga 750
 tgcggtgtgt ggggagcggc ggcgtaacac catcgcccc agttgcgccc 800
 tgccttctgt aacccccaat tgcctggatc tgcggagctt ctgccgtgcg 850
 gaccctttgt gcagatcacg cctgatggac ttccagaccc actgtcatcc 900
 tatggacatc cttgggactt gtgcaactga gcagtccaga tgtctgcggg 950
 catacctggg gctgattggg actgccatga ccccaaactt catcagcaag 1000
 gtcaacacta ctgttgccct aagctgcacc tgccgaggca gcggcaacct 1050
 acaggacgag tgtgaacagc tggaaaggct cttctcccag aaccctgcc 1100
 tcgtggaggc cattgcagct aagatgcgtt tccacagaca gctcttctcc 1150
 caggactggg cagactctac tttttcagtg gtgcagcagc agaacagcaa 1200
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 ctttgtctc tccaccacac ccagactgat ttgcagcctg tgggtgggaga 1350
 gaactcgcca gcctgtggaa gaagacgcag cgtgctacac agcaaccggg 1400
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 tcccttgccc ctgcttcctt ctggctcagg ctgctcctcc ttaggacttt 1550
 gtgggtccag ttttgccttc tggtctgatg gtgattagcg gctcacctcc 1600
 agcgcttctt cctgtttccc aggaccaccc agaggctaag gaatcagtca 1650
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 agaaaaatgt ttcctttgtg tggaaaggct gtgctccagc ctccacgtcc 1750
 ctctgaatgg aagataaaaa cctgctgggt tcttgactgc tctgccaggc 1800
 aatcctgaac atttgggcat gaagagctaa agtctttggg tcttggttaa 1850
 ctctattac tgtcccaaaa ttcccctagt cccttgggtc atgattaaac 1900
 attttgactt aaaaaaaaaa aaaaaaaaaa aaaaa 1935

<210> 5
 <211> 397

<212> PRT
 <213> Mus musculus

<400> 5

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 Thr Glu Asn Arg Phe Val Asn Ser Cys Thr Gln Ala Arg Lys Lys Cys
 35 40 45
 Glu Ala Asn Pro Ala Cys Lys Ala Ala Tyr Gln His Leu Gly Ser Cys
 50 55 60
 Thr Ser Ser Leu Ser Arg Pro Leu Pro Leu Glu Glu Ser Ala Met Ser
 65 70 75 80
 Ala Asp Cys Leu Glu Ala Ala Glu Gln Leu Arg Asn Ser Ser Leu Ile
 85 90 95
 Asp Cys Arg Cys His Arg Arg Met Lys His Gln Ala Thr Cys Leu Asp
 100 105 110
 Ile Tyr Trp Thr Val His Pro Ala Arg Ser Leu Gly Asp Tyr Glu Leu
 115 120 125
 Asp Val Ser Pro Tyr Glu Asp Thr Val Thr Ser Lys Pro Trp Lys Met
 130 135 140
 Asn Leu Ser Lys Leu Asn Met Leu Lys Pro Asp Ser Asp Leu Cys Leu
 145 150 155 160
 Lys Phe Ala Met Leu Cys Thr Leu His Asp Lys Cys Asp Arg Leu Arg
 165 170 175
 Lys Ala Tyr Gly Glu Ala Cys Ser Gly Ile Arg Cys Gln Arg His Leu
 180 185 190
 Cys Leu Ala Gln Leu Arg Ser Phe Phe Glu Lys Ala Ala Glu Ser His
 195 200 205
 Ala Gln Gly Leu Leu Leu Cys Pro Cys Ala Pro Glu Asp Ala Gly Cys
 210 215 220
 Gly Glu Arg Arg Arg Asn Thr Ile Ala Pro Ser Cys Ala Leu Pro Ser
 225 230 235 240
 Val Thr Pro Asn Cys Leu Asp Leu Arg Ser Phe Cys Arg Ala Asp Pro
 245 250 255
 Leu Cys Arg Ser Arg Leu Met Asp Phe Gln Thr His Cys His Pro Met
 260 265 270
 Asp Ile Leu Gly Thr Cys Ala Thr Glu Gln Ser Arg Cys Leu Arg Ala
 275 280 285
 Tyr Leu Gly Leu Ile Gly Thr Ala Met Thr Pro Asn Phe Ile Ser Lys
 290 295 300
 Val Asn Thr Thr Val Ala Leu Ser Cys Thr Cys Arg Gly Ser Gly Asn
 305 310 315 320
 Leu Gln Asp Glu Cys Glu Gln Leu Glu Arg Ser Phe Ser Gln Asn Pro
 325 330 335
 Cys Leu Val Glu Ala Ile Ala Ala Lys Met Arg Phe His Arg Gln Leu
 340 345 350
 Phe Ser Gln Asp Trp Ala Asp Ser Thr Phe Ser Val Val Gln Gln Gln
 355 360 365
 Asn Ser Asn Pro Ala Leu Arg Leu Gln Pro Arg Leu Pro Ile Leu Ser
 370 375 380
 Phe Ser Ile Leu Pro Leu Ile Leu Leu Gln Thr Leu Trp
 385 390 395

<210> 6
 <211> 460
 <212> PRT
 <213> Homo sapiens

<400> 6

Met	Phe	Leu	Ala	Thr	Leu	Tyr	Phe	Ala	Leu	Pro	Leu	Leu	Asp	Leu	1	5	10	15
Leu	Leu	Ser	Ala	Glu	Val	Ser	Gly	Gly	Asp	Arg	Leu	Asp	Cys	Val	20	25	30	
Lys	Ala	Ser	Asp	Gln	Cys	Leu	Lys	Glu	Gln	Ser	Cys	Ser	Thr	Lys	35	40	45	
Tyr	Arg	Thr	Leu	Arg	Gln	Cys	Val	Ala	Gly	Lys	Glu	Thr	Asn	Phe	50	55	60	
Ser	Leu	Ala	Ser	Gly	Leu	Glu	Ala	Lys	Asp	Glu	Cys	Arg	Ser	Ala	65	70	75	
Met	Glu	Ala	Leu	Lys	Gln	Lys	Ser	Leu	Tyr	Asn	Cys	Arg	Cys	Lys	80	85	90	
Arg	Gly	Met	Lys	Lys	Glu	Lys	Asn	Cys	Leu	Arg	Ile	Tyr	Trp	Ser	95	100	105	
Met	Tyr	Gln	Ser	Leu	Gln	Gly	Asn	Asp	Leu	Leu	Glu	Asp	Ser	Pro	110	115	120	
Tyr	Glu	Pro	Val	Asn	Ser	Arg	Leu	Ser	Asp	Ile	Phe	Arg	Val	Val	125	130	135	
Pro	Phe	Ile	Ser	Val	Glu	His	Ile	Pro	Lys	Gly	Asn	Asn	Cys	Leu	140	145	150	
Asp	Ala	Ala	Lys	Ala	Cys	Asn	Leu	Asp	Asp	Ile	Cys	Lys	Lys	Tyr	155	160	165	
Arg	Ser	Ala	Tyr	Ile	Thr	Pro	Cys	Thr	Thr	Ser	Val	Ser	Asn	Asp	170	175	180	
Val	Cys	Asn	Arg	Arg	Lys	Cys	His	Lys	Ala	Leu	Arg	Gln	Phe	Phe	185	190	195	
Asp	Lys	Val	Pro	Ala	Lys	His	Ser	Tyr	Gly	Met	Leu	Phe	Cys	Ser	200	205	210	
Cys	Arg	Asp	Ile	Ala	Cys	Thr	Glu	Arg	Arg	Arg	Gln	Thr	Ile	Val	215	220	225	
Pro	Val	Cys	Ser	Tyr	Glu	Glu	Arg	Glu	Lys	Pro	Asn	Cys	Leu	Asn	230	235	240	
Leu	Gln	Asp	Ser	Cys	Lys	Thr	Asn	Tyr	Ile	Cys	Arg	Ser	Arg	Leu	245	250	255	
Ala	Asp	Phe	Phe	Thr	Asn	Cys	Gln	Pro	Glu	Ser	Arg	Ser	Val	Ser	260	265	270	
Ser	Cys	Leu	Lys	Glu	Asn	Tyr	Ala	Asp	Cys	Leu	Leu	Ala	Tyr	Ser	275	280	285	
Gly	Leu	Ile	Gly	Thr	Val	Met	Thr	Pro	Asn	Tyr	Ile	Asp	Ser	Ser	290	295	300	

87
cont.

Ser	Leu	Ser	Val	Ala	Pro	Trp	Cys	Asp	Cys	Ser	Asn	Ser	Gly	Asn
				305					310					315
Asp	Leu	Glu	Glu	Cys	Leu	Lys	Phe	Leu	Asn	Phe	Phe	Lys	Asp	Asn
				320					325					330
Thr	Cys	Leu	Lys	Asn	Ala	Ile	Gln	Ala	Phe	Gly	Asn	Gly	Ser	Asp
				335					340					345
Val	Thr	Val	Trp	Gln	Pro	Ala	Phe	Pro	Val	Gln	Thr	Thr	Thr	Ala
				350					355					360
Thr	Thr	Thr	Thr	Ala	Leu	Arg	Val	Lys	Asn	Lys	Pro	Leu	Gly	Pro
				365					370					375
Ala	Gly	Ser	Glu	Asn	Glu	Ile	Pro	Thr	His	Val	Leu	Pro	Pro	Cys
				380					385					390
Ala	Asn	Leu	Gln	Ala	Gln	Lys	Leu	Lys	Ser	Asn	Val	Ser	Gly	Asn
				395					400					405
Thr	His	Leu	Cys	Ile	Ser	Asn	Gly	Asn	Tyr	Glu	Lys	Glu	Gly	Leu
				410					415					420
Gly	Ala	Ser	Ser	His	Ile	Thr	Thr	Lys	Ser	Met	Ala	Ala	Pro	Pro
				425					430					435
Ser	Cys	Gly	Leu	Ser	Pro	Leu	Leu	Val	Leu	Val	Val	Thr	Ala	Leu
				440					445					450
Ser	Thr	Leu	Leu	Ser	Leu	Thr	Glu	Thr	Ser					
				455					460					

<210> 7
 <211> 464
 <212> PRT
 <213> Homo sapiens

<400> 7

Met	Ile	Leu	Ala	Asn	Val	Phe	Phe	Leu	Phe	Phe	Phe	Leu	Asp	Glu
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Thr	Leu	Arg	Ser	Leu	Ala	Ser	Pro	Ser	Ser	Leu	Gln	Asp	Pro	Glu
				20					25					30
Leu	His	Gly	Trp	Arg	Pro	Pro	Val	Asp	Cys	Val	Arg	Ala	Asn	Glu
				35					40					45
Leu	Cys	Ala	Ala	Glu	Ser	Asn	Cys	Ser	Ser	Arg	Tyr	Arg	Thr	Leu
				50					55					60
Arg	Gln	Cys	Leu	Ala	Gly	Arg	Asp	Arg	Asn	Thr	Met	Leu	Ala	Asn
				65					70					75
Lys	Glu	Cys	Gln	Ala	Ala	Leu	Glu	Val	Leu	Gln	Glu	Ser	Pro	Leu
				80					85					90
Tyr	Asp	Cys	Arg	Cys	Lys	Arg	Gly	Met	Lys	Lys	Glu	Leu	Gln	Cys
				95					100					105

Leu	Gln	Ile	Tyr	Trp	Ser	Ile	His	Leu	Gly	Leu	Thr	Glu	Gly	Glu	110	115	120
Glu	Phe	Tyr	Glu	Ala	Ser	Pro	Tyr	Glu	Pro	Val	Thr	Ser	Arg	Leu	125	130	135
Ser	Asp	Ile	Phe	Arg	Leu	Ala	Ser	Ile	Phe	Ser	Gly	Thr	Gly	Ala	140	145	150
Asp	Pro	Val	Val	Ser	Ala	Lys	Ser	Asn	His	Cys	Leu	Asp	Ala	Ala	155	160	165
Lys	Ala	Cys	Asn	Leu	Asn	Asp	Asn	Cys	Lys	Lys	Leu	Arg	Ser	Ser	170	175	180
Tyr	Ile	Ser	Ile	Cys	Asn	Arg	Glu	Ile	Ser	Pro	Thr	Glu	Arg	Cys	185	190	195
Asn	Arg	Arg	Lys	Cys	His	Lys	Ala	Leu	Arg	Gln	Phe	Phe	Asp	Arg	200	205	210
Val	Pro	Ser	Glu	Tyr	Thr	Tyr	Arg	Met	Leu	Phe	Cys	Ser	Cys	Gln	215	220	225
Asp	Gln	Ala	Cys	Ala	Glu	Arg	Arg	Arg	Gln	Thr	Ile	Leu	Pro	Ser	230	235	240
Cys	Ser	Tyr	Glu	Asp	Lys	Glu	Lys	Pro	Asn	Cys	Leu	Asp	Leu	Arg	245	250	255
Gly	Val	Cys	Arg	Thr	Asp	His	Leu	Cys	Arg	Ser	Arg	Leu	Ala	Asp	260	265	270
Phe	His	Ala	Asn	Cys	Arg	Ala	Ser	Tyr	Gln	Thr	Val	Thr	Ser	Cys	275	280	285
Pro	Ala	Asp	Asn	Tyr	Gln	Ala	Cys	Leu	Gly	Ser	Tyr	Ala	Gly	Met	290	295	300
Ile	Gly	Phe	Asp	Met	Thr	Pro	Asn	Tyr	Val	Asp	Ser	Ser	Pro	Thr	305	310	315
Gly	Ile	Val	Val	Ser	Pro	Trp	Cys	Ser	Cys	Arg	Gly	Ser	Gly	Asn	320	325	330
Met	Glu	Glu	Glu	Cys	Glu	Lys	Phe	Leu	Arg	Asp	Phe	Thr	Glu	Asn	335	340	345
Pro	Cys	Leu	Arg	Asn	Ala	Ile	Gln	Ala	Phe	Gly	Asn	Gly	Thr	Asp	350	355	360
Val	Asn	Val	Ser	Pro	Lys	Gly	Pro	Ser	Phe	Gln	Ala	Thr	Gln	Ala	365	370	375
Pro	Arg	Val	Glu	Lys	Thr	Pro	Ser	Leu	Pro	Asp	Asp	Leu	Ser	Asp	380	385	390
Ser	Thr	Ser	Leu	Gly	Thr	Ser	Val	Ile	Thr	Thr	Cys	Thr	Ser	Val	395	400	405
Gln	Glu	Gln	Gly	Leu	Lys	Ala	Asn	Asn	Ser	Lys	Glu	Leu	Ser	Met			

B7
cont.

	410		415		420
Cys Phe Thr Glu	Leu Thr Thr Asn Ile	Ile Pro Gly Ser Asn Lys			
	425	430		435	
Val Ile Lys Pro	Asn Ser Gly Pro Ser	Arg Ala Arg Pro Ser Ala			
	440	445		450	
Ala Leu Thr Val	Leu Ser Val Leu Met	Leu Lys Leu Ala Leu			
	455	460			

<210> 8
 <211> 468
 <212> PRT
 <213> Rattus norvegicus

<400> 8
 Met Phe Leu Ala Thr Leu Tyr Phe Ala Leu Pro Leu Leu Asp Leu
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 Leu Met Ser Ala Glu Val Ser Gly Gly Asp Arg Leu Asp Cys Val
 20 25 30
 Lys Ala Ser Asp Gln Cys Leu Lys Glu Gln Ser Cys Ser Thr Lys
 35 40 45
 Tyr Arg Thr Leu Arg Gln Cys Val Ala Gly Lys Glu Thr Asn Phe
 50 55 60
 Ser Leu Thr Ser Gly Leu Glu Ala Lys Asp Glu Cys Arg Ser Ala
 65 70 75
 Met Glu Ala Leu Lys Gln Lys Ser Leu Tyr Asn Cys Arg Cys Lys
 80 85 90
 Arg Gly Met Lys Lys Glu Lys Asn Cys Leu Arg Ile Tyr Trp Ser
 95 100 105
 Met Tyr Gln Ser Leu Gln Gly Asn Asp Leu Leu Glu Asp Ser Pro
 110 115 120
 Tyr Glu Pro Val Asn Ser Arg Leu Ser Asp Ile Phe Arg Ala Val
 125 130 135
 Pro Phe Ile Ser Asp Val Phe Gln Gln Val Glu His Ile Ser Lys
 140 145 150
 Gly Asn Asn Cys Leu Asp Ala Ala Lys Ala Cys Asn Leu Asp Asp
 155 160 165
 Thr Cys Lys Lys Tyr Arg Ser Ala Tyr Ile Thr Pro Cys Thr Thr
 170 175 180
 Ser Met Ser Asn Glu Val Cys Asn Arg Arg Lys Cys His Lys Ala
 185 190 195
 Leu Arg Gln Phe Phe Asp Lys Val Pro Ala Lys His Ser Tyr Gly
 200 205 210
 Met Leu Phe Cys Ser Cys Arg Asp Ile Ala Cys Thr Glu Arg Arg

B7
 cont.

	215	220	225
Arg Gln Thr Ile Val Pro Val Cys Ser Tyr Glu Glu Arg Glu Arg	230	235	240
Pro Asn Cys Leu Ser Leu Gln Asp Ser Cys Lys Thr Asn Tyr Ile	245	250	255
Cys Arg Ser Arg Leu Ala Asp Phe Phe Thr Asn Cys Gln Pro Glu	260	265	270
Ser Arg Ser Val Ser Asn Cys Leu Lys Glu Asn Tyr Ala Asp Cys	275	280	285
Leu Leu Ala Tyr Ser Gly Leu Ile Gly Thr Val Met Thr Pro Asn	290	295	300
Tyr Val Asp Ser Ser Ser Leu Ser Val Ala Pro Trp Cys Asp Cys	305	310	315
Ser Asn Ser Gly Asn Asp Leu Glu Asp Cys Leu Lys Phe Leu Asn	320	325	330
Phe Phe Lys Asp Asn Thr Cys Leu Lys Asn Ala Ile Gln Ala Phe	335	340	345
Gly Asn Gly Ser Asp Val Thr Met Trp Gln Pro Ala Pro Pro Val	350	355	360
Gln Thr Thr Thr Ala Thr Thr Thr Thr Ala Phe Arg Val Lys Asn	365	370	375
Lys Pro Leu Gly Pro Ala Gly Ser Glu Asn Glu Ile Pro Thr His	380	385	390
Val Leu Pro Pro Cys Ala Asn Leu Gln Ala Gln Lys Leu Lys Ser	395	400	405
Asn Val Ser Gly Ser Thr His Leu Cys Leu Ser Asp Ser Asp Phe	410	415	420
Gly Lys Asp Gly Leu Ala Gly Ala Ser Ser His Ile Thr Thr Lys	425	430	435
Ser Met Ala Ala Pro Pro Ser Cys Ser Leu Ser Ser Leu Pro Val	440	445	450
Leu Met Leu Thr Ala Leu Ala Ala Leu Leu Ser Val Ser Leu Ala	455	460	465
Glu Thr Ser			

<210> 9
 <211> 464
 <212> PRT
 <213> Rattus Norvegicus

<400> 9
 Met Ile Leu Ala Asn Ala Phe Cys Leu Phe Phe Phe Leu Asp Glu
 1 5 10 15

Thr	Leu	Arg	Ser	Leu	Ala	Ser	Pro	Ser	Ser	Leu	Gln	Gly	Ser	Glu
				20					25					30
Leu	His	Gly	Trp	Arg	Pro	Gln	Val	Asp	Cys	Val	Arg	Ala	Asn	Glu
				35					40					45
Leu	Cys	Ala	Ala	Glu	Ser	Asn	Cys	Ser	Ser	Arg	Tyr	Arg	Thr	Leu
				50					55					60
Arg	Gln	Cys	Leu	Ala	Gly	Arg	Asp	Arg	Asn	Thr	Met	Leu	Ala	Asn
				65					70					75
Lys	Glu	Cys	Gln	Ala	Ala	Leu	Glu	Val	Leu	Gln	Glu	Ser	Pro	Leu
				80					85					90
Tyr	Asp	Cys	Arg	Cys	Lys	Arg	Gly	Met	Lys	Lys	Glu	Leu	Gln	Cys
				95					100					105
Leu	Gln	Ile	Tyr	Trp	Ser	Ile	His	Leu	Gly	Leu	Thr	Glu	Gly	Glu
				110					115					120
Glu	Phe	Tyr	Glu	Ala	Ser	Pro	Tyr	Glu	Pro	Val	Thr	Ser	Arg	Leu
				125					130					135
Ser	Asp	Ile	Phe	Arg	Leu	Ala	Ser	Ile	Phe	Ser	Gly	Thr	Gly	Thr
				140					145					150
Asp	Pro	Ala	Val	Ser	Thr	Lys	Ser	Asn	His	Cys	Leu	Asp	Ala	Ala
				155					160					165
Lys	Ala	Cys	Asn	Leu	Asn	Asp	Asn	Cys	Lys	Lys	Leu	Arg	Ser	Ser
				170					175					180
Tyr	Ile	Ser	Ile	Cys	Asn	Arg	Glu	Ile	Ser	Pro	Thr	Glu	Arg	Cys
				185					190					195
Asn	Arg	Arg	Lys	Cys	His	Lys	Ala	Leu	Arg	Gln	Phe	Phe	Asp	Arg
				200					205					210
Val	Pro	Ser	Glu	Tyr	Thr	Tyr	Arg	Met	Leu	Phe	Cys	Ser	Cys	Gln
				215					220					225
Asp	Gln	Ala	Cys	Ala	Glu	Arg	Arg	Arg	Gln	Thr	Ile	Leu	Pro	Ser
				230					235					240
Cys	Ser	Tyr	Glu	Asp	Lys	Glu	Lys	Pro	Asn	Cys	Leu	Asp	Leu	Arg
				245					250					255
Ser	Leu	Cys	Arg	Thr	Asp	His	Leu	Cys	Arg	Ser	Arg	Leu	Ala	Asp
				260					265					270
Phe	His	Ala	Asn	Cys	Arg	Ala	Ser	Tyr	Arg	Thr	Ile	Thr	Ser	Cys
				275					280					285
Pro	Ala	Asp	Asn	Tyr	Gln	Ala	Cys	Leu	Gly	Ser	Tyr	Ala	Gly	Met
				290					295					300
Ile	Gly	Phe	Asp	Met	Thr	Pro	Asn	Tyr	Val	Asp	Ser	Asn	Pro	Thr
				305					310					315

B7
cont.

Gly Ile Val Val Ser Pro Trp Cys Asn Cys Arg Gly Ser Gly Asn
 320 325 330
 Met Glu Glu Glu Cys Glu Lys Phe Leu Arg Asp Phe Thr Glu Asn
 335 340 345
 Pro Cys Leu Arg Asn Ala Ile Gln Ala Phe Gly Asn Gly Thr Asp
 350 355 360
 Val Asn Met Ser Pro Lys Gly Pro Ser Leu Pro Ala Thr Gln Ala
 365 370 375
 Pro Arg Val Glu Lys Thr Pro Ser Leu Pro Asp Asp Leu Ser Asp
 380 385 390
 Ser Thr Ser Leu Gly Thr Ser Val Ile Thr Thr Cys Thr Ser Ile
 395 400 405
 Gln Glu Gln Gly Leu Lys Ala Asn Asn Ser Lys Glu Leu Ser Met
 410 415 420
 Cys Phe Thr Glu Leu Thr Thr Asn Ile Ser Pro Gly Ser Lys Lys
 425 430 435
 Val Ile Lys Leu Asn Ser Gly Ser Ser Arg Ala Arg Leu Ser Ala
 440 445 450
 Ala Leu Thr Ala Leu Pro Leu Leu Met Leu Thr Leu Ala Leu
 455 460

B7
 cont.
 <210> 10
 <211> 282
 <212> DNA
 <213> Artificial

<220>
 <221> unsure
 <222> 7-8, 11, 13, 15, 17, 19, 78, 152-188
 <223> unknown base

<400> 10
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 gctctcagag ctccagggga ggagcgangg gagcgcgag cccggccgcc 100
 tacagctcgc catggtgcgc cccctgaacc cgcgaccgct gccgcccgta 150
 gnnnnnnnnnn nnnnnnnnnnn nnnnnnnnnnn nnnnnnnnngc ctctcgcagc 200
 cggagacccc cttccacag aaagccgact catgaacagc tgtctccagg 250
 ccaggaggaa gtgccaggct gatccacact gc 282

<210> 11
 <211> 20
 <212> DNA
 <213> Artificial

<400> 11
 gcctctcgca gccggagacc 20

<210> 12
<211> 21
<212> DNA
<213> Artificial

<400> 12
caggtgggat cagcctggca c 21

<210> 13
<211> 41
<212> DNA
<213> Artificial

<400> 13
tctcgagcc ggagaccccc ttccacaga aagccgactc a 41

<210> 14
<211> 1792
<212> DNA
<213> Homo sapiens

<400> 14
atggtgagcc ccctgaaccc ggcaccgtg ccgcccgtag tctgatgtt 50
gctgctgtg ctgccgccgt cgcgctgccc tctcgagcc ggagaccccc 100
ttccacaga aagccgactc atgaacagct gtctccaggc caggaggaag 150
tgccaggctg atccacctg cagtgtgccc taccaccacc tggattcctg 200
cacctctagc ataagcacc cactgccctc agaggagcct tcggtccctg 250
ctgactgcct ggaggcagca cagcaactca ggaacagctc tctgataggc 300
tgcatgtgcc accggcgcat gaagaaccag gttgcctgct tggacatcta 350
ttggaccgtt caccgtgccc gcagccttgg taactatgag ctggatgtct 400
ccccctatga agacacagt accagcaaac cctggaaaat gaatctcagc 450
aaactgaaca tgctcaaacc agactcagac ctctgcctca agtttgccat 500
gctgtgtact ctcaatgaca agtgtgaccg gctgcgcaag gcctacgggg 550
aggcgtgtc cgggccccac tgccagcgcc acgtctgcct caggcagctg 600
ctcactttct tcgagaaggc cgcgagccc caccgcagcgc gcctgtact 650
gtgcccattg gcccacaac accggggctg cggggagcgc cggcgcaaca 700
ccatcgcccc caactgcgcg ctgccgctg tggccccaa ctgcctggag 750
ctgcggcgcc tctgtttctc cgaccgctt tgcagatcac gcctggtgga 800
tttccagacc cactgccatc ccatggacat cctaggaact tgtgcaacag 850
agcagtccag atgtctacga gcatacctg ggctgattgg gactgccatg 900
acccccaaact ttgtcagcaa tgtcaacacc agtgttgcct taagctgcac 950

B7
cont.

ctgccgagggc agtggcaacc tgcaggagga gtgtgaaatg ctggaaggggt 1000
 tcttctccca caaccctgc ctcacggagg ccattgcagc taagatgcgt 1050
 tttcacagcc aactcttctc ccaggactgg ccacacccta cctttgctgt 1100
 gatggcacac cagaatgaaa accctgctgt gaggccacag ccctgggtgc 1150
 cctctctttt ctctgcacg cttcccttga ttctgctcct gaggcctatgg 1200
 tagctggact tccccagggc cctcttcccc tccaccacac ccagggtggac 1250
 ttgcagccca caaggggtga ggaaaggaca gcagcaggaa ggaggtgcag 1300
 tgcgcagatg agggcacagg agaagctaag gggttatgacc tccagatcct 1350
 tactggtcca gtcctcattc cctccacccc atctccactt ctgattcatg 1400
 ctgcccctcc ttggtggcca caatttagcc atgtcatctg gtggtgacca 1450
 gctccaccaa gcccctttct gagcccttcc tcttgactac caggatcacc 1500
 agaatctaata aagttagcct ttctctattg cattccagat taggggttagg 1550
 gtagggagga ctgggtgttc tgaggcagcc tagaaagtca ttctcctttg 1600
 tgaagaaggc tctgcccccc tcgtctcctc ctctgagtgg aggatggaaa 1650
 actactgcct gcaactgccct gtccccggat cctgccgaac atctgggcat 1700
 caggagctgg agcctgtggg ccttgcttta ttcttattat tgtcctaaag 1750
 tctctctggg ctcttgatc atgattaaac ctttgactta ag 1792

<210> 15
 <211> 400
 <212> PRT
 <213> Homo sapiens

<400> 15
 Met Val Arg Pro Leu Asn Pro Arg Pro Leu Pro Pro Val Val Leu
 1 5 10 15
 Met Leu Leu Leu Leu Leu Pro Pro Ser Pro Leu Pro Leu Ala Ala
 20 25 30
 Gly Asp Pro Leu Pro Thr Glu Ser Arg Leu Met Asn Ser Cys Leu
 35 40 45
 Gln Ala Arg Arg Lys Cys Gln Ala Asp Pro Thr Cys Ser Ala Ala
 50 55 60
 Tyr His His Leu Asp Ser Cys Thr Ser Ser Ile Ser Thr Pro Leu
 65 70 75
 Pro Ser Glu Glu Pro Ser Val Pro Ala Asp Cys Leu Glu Ala Ala
 80 85 90
 Gln Gln Leu Arg Asn Ser Ser Leu Ile Gly Cys Met Cys His Arg

	95	100	105
Arg Met Lys Asn Gln Val Ala Cys Leu Asp Ile Tyr Trp Thr Val	110	115	120
His Arg Ala Arg Ser Leu Gly Asn Tyr Glu Leu Asp Val Ser Pro	125	130	135
Tyr Glu Asp Thr Val Thr Ser Lys Pro Trp Lys Met Asn Leu Ser	140	145	150
Lys Leu Asn Met Leu Lys Pro Asp Ser Asp Leu Cys Leu Lys Phe	155	160	165
Ala Met Leu Cys Thr Leu Asn Asp Lys Cys Asp Arg Leu Arg Lys	170	175	180
Ala Tyr Gly Glu Ala Cys Ser Gly Pro His Cys Gln Arg His Val	185	190	195
Cys Leu Arg Gln Leu Leu Thr Phe Phe Glu Lys Ala Ala Glu Pro	200	205	210
His Ala Gln Gly Leu Leu Leu Cys Pro Cys Ala Pro Asn Asp Arg	215	220	225
Gly Cys Gly Glu Arg Arg Arg Asn Thr Ile Ala Pro Asn Cys Ala	230	235	240
Leu Pro Pro Val Ala Pro Asn Cys Leu Glu Leu Arg Arg Leu Cys	245	250	255
Phe Ser Asp Pro Leu Cys Arg Ser Arg Leu Val Asp Phe Gln Thr	260	265	270
His Cys His Pro Met Asp Ile Leu Gly Thr Cys Ala Thr Glu Gln	275	280	285
Ser Arg Cys Leu Arg Ala Tyr Leu Gly Leu Ile Gly Thr Ala Met	290	295	300
Thr Pro Asn Phe Val Ser Asn Val Asn Thr Ser Val Ala Leu Ser	305	310	315
Cys Thr Cys Arg Gly Ser Gly Asn Leu Gln Glu Glu Cys Glu Met	320	325	330
Leu Glu Gly Phe Phe Ser His Asn Pro Cys Leu Thr Glu Ala Ile	335	340	345
Ala Ala Lys Met Arg Phe His Ser Gln Leu Phe Ser Gln Asp Trp	350	355	360
Pro His Pro Thr Phe Ala Val Met Ala His Gln Asn Glu Asn Pro	365	370	375
Ala Val Arg Pro Gln Pro Trp Val Pro Ser Leu Phe Ser Cys Thr	380	385	390
Leu Pro Leu Ile Leu Leu Leu Ser Leu Trp			

B7
cont.

<210> 16
 <211> 1837
 <212> DNA
 <213> Homo sapiens

<400> 16
 cccaggaccc tgggtgggaga gtgtgtgcgt cgcgctggag ggcgggaggg 50
 gggggcgggg ggtgccggtc gagggagccc cgctctcaga gctccagggg 100
 aggagcgagg ggagcgcgga gcccggcgcc tacagctcgc catggtgcgc 150
 cccctgaacc cgcgaccgct gccgcccgtg gtcctgatgt tgctgctgct 200
 gctgccgccc tcgccgctgc ctctcgcagc cggagacccc cttcccacag 250
 aaagccgact catgaacagc tgtctccagg ccaggaggaa gtgccaggct 300
 gatccacact gcagtgtctc ctaccaccac ctggattcct gcacctctag 350
 cataagcacc cactgccct cagaggagcc ttcggtcctt gctgactgcc 400
 tggaggcagc acagcaactc aggaacagct ctctgatagg ctgcatgtgc 450
 caccggcgca tgaagaacca ggttgccctgc ttggacatct attggaccgt 500
 tcaccgtgcc cgcagccttg actcagacct ctgcctcaag tttgccatgc 550
 tgtgtactct caatgacaag tgtgaccggc tgcgcaaggc ctacggggag 600
 gcgtgctccg ggccccactg ccagcgccac gtctgcctca ggcagctgct 650
 cactttcttc gagaaggccg ccgagcccca cgcgcagggc ctgctactgt 700
 gcccatgtgc cccaacgac cggggctgcg gggagcgccg gcgcaacacc 750
 atcgccccca actgcgcgt gccgcctgtg gcccccaact gcctggagct 800
 gcggcgccctc tgcttctccg acccgctttg cagatcacgc ctggtggatt 850
 tccagaccca ctgccatccc atggacatcc taggaacttg tgcaacagag 900
 cagtccagat gtctacgagc atacctgggg ctgattggga ctgccatgac 950
 cccaacttt gtcagcaatg tcaacaccag tggtgcctta agctgcacct 1000
 gccgaggcag tggcaacctg caggaggagt gtgaaatgct ggaagggttc 1050
 ttctcccaca accctgcct cacggaggcc attgcagcta agatgcgttt 1100
 tcacagccaa ctcttctccc aggactggcc acaccctacc tttgctgtga 1150
 tggcacacca gaatgaaaac cctgctgtga ggccacagcc ctgggtgccc 1200
 tctcttttct cctgcacgct tcccttgatt ctgctcctga gcctatggta 1250
 gctggacttc cccaggggccc tcttcccctc caccacaccc aggtggactt 1300
 gcagcccaca aggggtgagg aaaggacagc agcaggaagg aggtgcagtg 1350

B7
 cont.

cgcatgatgag ggcacaggag aagctaaggg ttatgacctc cagatcctta 1400
 ctggtccagt cctcattccc tccaccccat ctccacttct gattcatgct 1450
 gccctcctt ggtggccaca atttagccat gtcactctgt ggtgaccagc 1500
 tccaccaagc ccttttctga gcccttcctc ttgactacca ggatcaccag 1550
 aatctaataa gttagccttt ctctattgca ttccagatta gggttagggt 1600
 agggaggact ggggtgtctg aggcagccta gaaagtcatt ctcctttgtg 1650
 aagaaggctc ctgccccctc gtctcctcct ctgagtggag gatggaaaac 1700
 tactgcctgc actgccctgt ccccgatcc tgccgaacat ctgggcatca 1750
 ggagctggag cctgtgggcc ttgctttatt cctattattg tcctaaagtc 1800
 tctctgggct cttggatcat gattaaacct ttgactt 1837

<210> 17
 <211> 369
 <212> PRT
 <213> Homo sapiens

<400> 17
 Met Val Arg Pro Leu Asn Pro Arg Pro Leu Pro Pro Val Val Leu
 1 5 10 15
 Met Leu Leu Leu Leu Leu Pro Pro Ser Pro Leu Pro Leu Ala Ala
 20 25 30
 Gly Asp Pro Leu Pro Thr Glu Ser Arg Leu Met Asn Ser Cys Leu
 35 40 45
 Gln Ala Arg Arg Lys Cys Gln Ala Asp Pro Thr Cys Ser Ala Ala
 50 55 60
 Tyr His His Leu Asp Ser Cys Thr Ser Ser Ile Ser Thr Pro Leu
 65 70 75
 Pro Ser Glu Glu Pro Ser Val Pro Ala Asp Cys Leu Glu Ala Ala
 80 85 90
 Gln Gln Leu Arg Asn Ser Ser Leu Ile Gly Cys Met Cys His Arg
 95 100 105
 Arg Met Lys Asn Gln Val Ala Cys Leu Asp Ile Tyr Trp Thr Val
 110 115 120
 His Arg Ala Arg Ser Leu Asp Ser Asp Leu Cys Leu Lys Phe Ala
 125 130 135
 Met Leu Cys Thr Leu Asn Asp Lys Cys Asp Arg Leu Arg Lys Ala
 140 145 150
 Tyr Gly Glu Ala Cys Ser Gly Pro His Cys Gln Arg His Val Cys
 155 160 165

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 cont.

Leu Arg Gln Leu Leu Thr Phe Phe Glu Lys Ala Ala Glu Pro His
 170 175 180
 Ala Gln Gly Leu Leu Leu Cys Pro Cys Ala Pro Asn Asp Arg Gly
 185 190 195
 Cys Gly Glu Arg Arg Arg Asn Thr Ile Ala Pro Asn Cys Ala Leu
 200 205 210
 Pro Pro Val Ala Pro Asn Cys Leu Glu Leu Arg Arg Leu Cys Phe
 215 220 225
 Ser Asp Pro Leu Cys Arg Ser Arg Leu Val Asp Phe Gln Thr His
 230 235 240
 Cys His Pro Met Asp Ile Leu Gly Thr Cys Ala Thr Glu Gln Ser
 245 250 255
 Arg Cys Leu Arg Ala Tyr Leu Gly Leu Ile Gly Thr Ala Met Thr
 260 265 270
 Pro Asn Phe Val Ser Asn Val Asn Thr Ser Val Ala Leu Ser Cys
 275 280 285
 Thr Cys Arg Gly Ser Gly Asn Leu Gln Glu Glu Cys Glu Met Leu
 290 295 300
 Glu Gly Phe Phe Ser His Asn Pro Cys Leu Thr Glu Ala Ile Ala
 305 310 315
 Ala Lys Met Arg Phe His Ser Gln Leu Phe Ser Gln Asp Trp Pro
 320 325 330
 His Pro Thr Phe Ala Val Met Ala His Gln Asn Glu Asn Pro Ala
 335 340 345
 Val Arg Pro Gln Pro Trp Val Pro Ser Leu Phe Ser Cys Thr Leu
 350 355 360
 Pro Leu Ile Leu Leu Leu Ser Leu Trp
 365

<210> 18
 <211> 628
 <212> PRT
 <213> Artificial

<400> 18
 Met Val Arg Pro Leu Asn Pro Arg Pro Leu Pro Pro Val Val Leu
 1 5 10 15
 Met Leu Leu Leu Leu Leu Pro Pro Ser Pro Leu Pro Leu Ala Ala
 20 25 30
 Gly Asp Pro Leu Pro Thr Glu Ser Arg Leu Met Asn Ser Cys Leu
 35 40 45
 Gln Ala Arg Arg Lys Cys Gln Ala Asp Pro Thr Cys Ser Ala Ala
 50 55 60

Tyr	His	His	Leu	Asp	Ser	Cys	Thr	Ser	Ser	Ile	Ser	Thr	Pro	Leu	
				65					70					75	
Pro	Ser	Glu	Glu	Pro	Ser	Val	Pro	Ala	Asp	Cys	Leu	Glu	Ala	Ala	
				80					85					90	
Gln	Gln	Leu	Arg	Asn	Ser	Ser	Leu	Ile	Gly	Cys	Met	Cys	His	Arg	
				95					100					105	
Arg	Met	Lys	Asn	Gln	Val	Ala	Cys	Leu	Asp	Ile	Tyr	Trp	Thr	Val	
				110					115					120	
His	Arg	Ala	Arg	Ser	Leu	Gly	Asn	Tyr	Glu	Leu	Asp	Val	Ser	Pro	
				125					130					135	
Tyr	Glu	Asp	Thr	Val	Thr	Ser	Lys	Pro	Trp	Lys	Met	Asn	Leu	Ser	
				140					145					150	
Lys	Leu	Asn	Met	Leu	Lys	Pro	Asp	Ser	Asp	Leu	Cys	Leu	Lys	Phe	
				155					160					165	
Ala	Met	Leu	Cys	Thr	Leu	Asn	Asp	Lys	Cys	Asp	Arg	Leu	Arg	Lys	
				170					175					180	
Ala	Tyr	Gly	Glu	Ala	Cys	Ser	Gly	Pro	His	Cys	Gln	Arg	His	Val	
				185					190					195	
Cys	Leu	Arg	Gln	Leu	Leu	Thr	Phe	Phe	Glu	Lys	Ala	Ala	Glu	Pro	
				200					205					210	
His	Ala	Gln	Gly	Leu	Leu	Leu	Cys	Pro	Cys	Ala	Pro	Asn	Asp	Arg	
				215					220					225	
Gly	Cys	Gly	Glu	Arg	Arg	Arg	Asn	Thr	Ile	Ala	Pro	Asn	Cys	Ala	
				230					235					240	
Leu	Pro	Pro	Val	Ala	Pro	Asn	Cys	Leu	Glu	Leu	Arg	Arg	Leu	Cys	
				245					250					255	
Phe	Ser	Asp	Pro	Leu	Cys	Arg	Ser	Arg	Leu	Val	Asp	Phe	Gln	Thr	
				260					265					270	
His	Cys	His	Pro	Met	Asp	Ile	Leu	Gly	Thr	Cys	Ala	Thr	Glu	Gln	
				275					280					285	
Ser	Arg	Cys	Leu	Arg	Ala	Tyr	Leu	Gly	Leu	Ile	Gly	Thr	Ala	Met	
				290					295					300	
Thr	Pro	Asn	Phe	Val	Ser	Asn	Val	Asn	Thr	Ser	Val	Ala	Leu	Ser	
				305					310					315	
Cys	Thr	Cys	Arg	Gly	Ser	Gly	Asn	Leu	Gln	Glu	Glu	Cys	Glu	Met	
				320					325					330	
Leu	Glu	Gly	Phe	Phe	Ser	His	Asn	Pro	Cys	Leu	Thr	Glu	Ala	Ile	
				335					340					345	
Ala	Ala	Lys	Met	Arg	Phe	His	Ser	Gln	Leu	Phe	Ser	Gln	Asp	Trp	
				350					355					360	

B7
cont.

Pro	His	Pro	Thr	Phe	Ala	Val	Met	Ala	His	Gln	Asn	Glu	Asn	Pro	
				365					370					375	
Ala	Val	Arg	Pro	Gln	Pro	Trp	Val	Pro	Ser	Leu	Phe	Ser	Cys	Thr	
				380					385					390	
Leu	Pro	Leu	Ile	Leu	Leu	Leu	Ser	Leu	Trp	Pro	Asp	Lys	Thr	His	
				395					400					405	
Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	
				410					415					420	
Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	
				425					430					435	
Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	
				440					445					450	
Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	
				455					460					465	
His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	
				470					475					480	
Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	
				485					490					495	
Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	
				500					505					510	
Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	
				515					520					525	
Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	Glu	Met	Thr	
				530					535					540	
Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	
				545					550					555	
Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	
				560					565					570	
Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	
				575					580					585	
Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	
				590					595					600	
Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	
				605					610					615	
His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys			
				620					625						

<210> 19
 <211> 951
 <212> PRT
 <213> Homo sapiens

<400> 19
 Met Gly Gly Thr Ala Ala Arg Leu Gly Ala Val Ile Leu Phe Val

1	5	10	15
Val Ile Val Gly	Leu His Gly Val Arg	Gly Lys Tyr Ala Leu	Ala
	20	25	30
Asp Ala Ser Leu	Lys Met Ala Asp Pro	Asn Arg Phe Arg Gly	Lys
	35	40	45
Asp Leu Pro Val	Leu Asp Gln Leu Leu	Glu Pro Ser Ser Leu	Gln
	50	55	60
Gly Ser Glu Leu	His Gly Trp Arg Pro	Gln Val Asp Cys Val	Arg
	65	70	75
Ala Asn Glu Leu	Cys Ala Ala Glu Ser	Asn Cys Ser Ser Arg	Tyr
	80	85	90
Arg Thr Leu Arg	Gln Cys Leu Ala Gly	Arg Asp Arg Asn Thr	Met
	95	100	105
Leu Ala Asn Lys	Glu Cys Gln Ala Ala	Leu Glu Val Leu Gln	Glu
	110	115	120
Ser Pro Leu Tyr	Asp Cys Arg Cys Lys	Arg Gly Met Lys Lys	Glu
	125	130	135
Leu Gln Cys Leu	Gln Ile Tyr Trp Ser	Ile His Leu Gly Leu	Thr
	140	145	150
Glu Gly Glu Glu	Phe Tyr Glu Ala Ser	Pro Tyr Glu Pro Val	Thr
	155	160	165
Ser Arg Leu Ser	Asp Ile Phe Arg Leu	Ala Ser Ile Phe Ser	Gly
	170	175	180
Thr Gly Thr Asp	Pro Ala Val Ser Thr	Lys Ser Asn His Cys	Leu
	185	190	195
Asp Ala Ala Lys	Ala Cys Asn Leu Asn	Asp Asn Cys Lys Lys	Leu
	200	205	210
Arg Ser Ser Tyr	Ile Ser Ile Cys Asn	Arg Glu Ile Ser Pro	Thr
	215	220	225
Glu Arg Cys Asn	Arg Arg Lys Cys His	Lys Ala Leu Arg Gln	Phe
	230	235	240
Phe Asp Arg Val	Pro Ser Glu Tyr Thr	Tyr Arg Met Leu Phe	Cys
	245	250	255
Ser Cys Gln Asp	Gln Ala Cys Ala Glu	Arg Arg Arg Gln Thr	Ile
	260	265	270
Leu Pro Ser Cys	Ser Tyr Glu Asp Lys	Glu Lys Pro Asn Cys	Leu
	275	280	285
Asp Leu Arg Ser	Leu Cys Arg Thr Asp	His Leu Cys Arg Ser	Arg
	290	295	300
Leu Ala Asp Phe	His Ala Asn Cys Arg	Ala Ser Tyr Arg Thr	Ile

B7
cont.

Thr Ser Cys Pro	Ala 305	Asp Asn Tyr Gln	Ala 310	Cys Leu Gly Ser	Tyr 315
	320		325		330
Ala Gly Met Ile	Gly 335	Phe Asp Met Thr	Pro 340	Asn Tyr Val Asp	Ser 345
Asn Pro Thr Gly	Ile 350	Val Val Ser Pro	Trp 355	Cys Asn Cys Arg	Gly 360
Ser Gly Asn Met	Glu 365	Glu Glu Cys Glu	Lys 370	Phe Leu Arg Asp	Phe 375
Thr Glu Asn Pro	Cys 380	Leu Arg Asn Ala	Ile 385	Gln Ala Phe Gly	Asn 390
Gly Thr Asp Val	Asn 395	Met Ser Pro Lys	Gly 400	Pro Ser Leu Pro	Ala 405
Thr Gln Ala Pro	Arg 410	Val Glu Lys Thr	Pro 415	Ser Leu Pro Asp	Asp 420
Leu Ser Asp Ser	Thr 425	Ser Leu Gly Thr	Ser 430	Val Ile Thr Thr	Cys 435
Thr Ser Ile Gln	Glu 440	Gln Gly Leu Lys	Ala 445	Asn Asn Ser Lys	Glu 450
Leu Ser Met Cys	Phe 455	Thr Glu Leu Thr	Thr 460	Asn Ile Ile Pro	Gly 465
Trp Arg Ala Trp	Val 470	Pro Val Val Leu	Gly 475	Val Leu Thr Ala	Leu 480
Val Thr Ala Ala	Ala 485	Leu Ala Leu Ile	Leu 490	Leu Arg Lys Arg	Arg 495
Lys Glu Thr Arg	Phe 500	Gly Gln Ala Phe	Asp 505	Ser Val Met Ala	Arg 510
Gly Glu Pro Ala	Val 515	His Phe Arg Ala	Ala 520	Arg Ser Phe Asn	Arg 525
Glu Arg Pro Glu	Arg 530	Ile Glu Ala Thr	Leu 535	Asp Ser Leu Gly	Ile 540
Ser Asp Glu Leu	Lys 545	Glu Lys Leu Glu	Asp 550	Val Leu Ile Pro	Glu 555
Gln Gln Phe Thr	Leu 560	Gly Arg Met Leu	Gly 565	Lys Gly Glu Phe	Gly 570
Ser Val Arg Glu	Ala 575	Gln Leu Lys Gln	Glu 580	Asp Gly Ser Phe	Val 585
Lys Val Ala Val	Lys 590	Met Leu Lys Ala	Asp 595	Ile Ile Ala Ser	Ser 600
Asp Ile Glu Glu	Phe 605	Leu Arg Glu Ala	Ala 610	Cys Met Lys Glu	Phe 615

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cont.

Asp	His	Pro	His	Val	Ala	Lys	Leu	Val	Gly	Val	Ser	Leu	Arg	Ser	620	625	630
Arg	Ala	Lys	Gly	Arg	Leu	Pro	Ile	Pro	Met	Val	Ile	Leu	Pro	Phe	635	640	645
Met	Lys	His	Gly	Asp	Leu	His	Ala	Phe	Leu	Leu	Ala	Ser	Arg	Ile	650	655	660
Gly	Glu	Asn	Pro	Phe	Asn	Leu	Pro	Leu	Gln	Thr	Leu	Ile	Arg	Phe	665	670	675
Met	Val	Asp	Ile	Ala	Cys	Gly	Met	Glu	Tyr	Leu	Ser	Ser	Arg	Asn	680	685	690
Phe	Ile	His	Arg	Asp	Leu	Ala	Ala	Arg	Asn	Cys	Met	Leu	Ala	Glu	695	700	705
Asp	Met	Thr	Val	Cys	Val	Ala	Asp	Phe	Gly	Leu	Ser	Arg	Lys	Ile	710	715	720
Tyr	Ser	Gly	Asp	Tyr	Tyr	Arg	Gln	Gly	Cys	Ala	Ser	Lys	Leu	Pro	725	730	735
Val	Lys	Trp	Leu	Ala	Leu	Glu	Ser	Leu	Ala	Asp	Asn	Leu	Tyr	Thr	740	745	750
Val	Gln	Ser	Asp	Val	Trp	Ala	Phe	Gly	Val	Thr	Met	Trp	Glu	Ile	755	760	765
Met	Thr	Arg	Gly	Gln	Thr	Pro	Tyr	Ala	Gly	Ile	Glu	Asn	Ala	Glu	770	775	780
Ile	Tyr	Asn	Tyr	Leu	Ile	Gly	Gly	Asn	Arg	Leu	Lys	Gln	Pro	Pro	785	790	795
Glu	Cys	Met	Glu	Asp	Val	Tyr	Asp	Leu	Met	Tyr	Gln	Cys	Trp	Ser	800	805	810
Ala	Asp	Pro	Lys	Gln	Arg	Pro	Ser	Phe	Thr	Cys	Leu	Arg	Met	Glu	815	820	825
Leu	Glu	Asn	Ile	Leu	Gly	Gln	Leu	Ser	Val	Leu	Ser	Ala	Ser	Gln	830	835	840
Asp	Pro	Leu	Tyr	Ile	Asn	Ile	Glu	Arg	Ala	Glu	Glu	Pro	Thr	Ala	845	850	855
Gly	Gly	Ser	Leu	Glu	Leu	Pro	Gly	Arg	Asp	Gln	Pro	Tyr	Ser	Gly	860	865	870
Ala	Gly	Asp	Gly	Ser	Gly	Met	Gly	Ala	Val	Gly	Gly	Thr	Pro	Ser	875	880	885
Asp	Cys	Arg	Tyr	Ile	Leu	Thr	Pro	Gly	Gly	Leu	Ala	Glu	Gln	Pro	890	895	900
Gly	Gln	Ala	Glu	His	Gln	Pro	Glu	Ser	Pro	Leu	Asn	Glu	Thr	Gln	905	910	915

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cont.

Arg Leu Leu Leu Leu Gln Gln Gly Leu Leu Pro His Ser Ser Cys
920 925 930

Ala Asp Ala Ser Leu Lys Met Ala Asp Pro Asn Arg Phe Arg Gly
935 940 945

Lys Asp Leu Pro Val Leu
950

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Val Ile Val Gly Leu His Gly Val Arg Gly Lys Tyr Ala Leu Ala
20 25 30

Asp Ala Ser Leu Lys Met Ala Asp Pro Asn Arg Phe Arg Gly Lys
35 40 45

Asp Leu Pro Val Leu Asp Gln Leu Leu Glu Ala Gly Asn Ser Leu
50 55 60

Ala Thr Glu Asn Arg Phe Val Asn Ser Cys Thr Gln Ala Arg Lys
65 70 75

Lys Cys Glu Ala Asn Pro Ala Cys Lys Ala Ala Tyr Gln His Leu
80 85 90

Gly Ser Cys Thr Ser Ser Leu Ser Arg Pro Leu Pro Leu Glu Glu
95 100 105

Ser Ala Met Ser Ala Asp Cys Leu Glu Ala Ala Glu Gln Leu Arg
110 115 120

Asn Ser Ser Leu Ile Asp Cys Arg Cys His Arg Arg Met Lys His
125 130 135

Gln Ala Thr Cys Leu Asp Ile Tyr Trp Thr Val His Pro Ala Arg
140 145 150

Ser Leu Gly Asp Tyr Glu Leu Asp Val Ser Pro Tyr Glu Asp Thr
155 160 165

Val Thr Ser Lys Pro Trp Lys Met Asn Leu Ser Lys Leu Asn Met
170 175 180

Leu Lys Pro Asp Ser Asp Leu Cys Leu Lys Phe Ala Met Leu Cys
185 190 195

Thr Leu His Asp Lys Cys Asp Arg Leu Arg Lys Ala Tyr Gly Glu
200 205 210

Ala Cys Ser Gly Ile Arg Cys Gln Arg His Leu Cys Leu Ala Gln
215 220 225

B7
cont.

Leu	Arg	Ser	Phe	Phe	Glu	Lys	Ala	Ala	Glu	Ser	His	Ala	Gln	Gly	230	235	240
Leu	Leu	Leu	Cys	Pro	Cys	Pro	Pro	Glu	Asp	Ala	Gly	Cys	Gly	Glu	245	250	255
Arg	Arg	Arg	Asn	Thr	Ile	Ala	Pro	Ser	Cys	Ala	Leu	Pro	Ser	Val	260	265	270
Thr	Pro	Asn	Cys	Leu	Asp	Leu	Arg	Ser	Phe	Cys	Arg	Ala	Asp	Pro	275	280	285
Leu	Cys	Arg	Ser	Arg	Leu	Met	Asp	Phe	Gln	Thr	His	Cys	His	Pro	290	295	300
Met	Asp	Ile	Leu	Gly	Thr	Cys	Ala	Thr	Glu	Gln	Ser	Arg	Cys	Leu	305	310	315
Arg	Ala	Tyr	Leu	Gly	Leu	Ile	Gly	Thr	Ala	Met	Thr	Pro	Asn	Phe	320	325	330
Ile	Ser	Lys	Val	Asn	Thr	Thr	Val	Ala	Leu	Ser	Cys	Thr	Cys	Arg	335	340	345
Gly	Ser	Gly	Asn	Leu	Gln	Asp	Glu	Cys	Glu	Gln	Leu	Glu	Arg	Ser	350	355	360
Phe	Ser	Gln	Asn	Pro	Cys	Leu	Val	Glu	Ala	Ile	Ala	Ala	Lys	Met	365	370	375
Arg	Phe	His	Arg	Gln	Leu	Phe	Ser	Gln	Asp	Trp	Ala	Asp	Ser	Thr	380	385	390
Phe	Ser	Val	Val	Gln	Gln	Gln	Asn	Ser	Asn	Pro	Ala	Trp	Arg	Ala	395	400	405
Trp	Val	Pro	Val	Val	Leu	Gly	Val	Leu	Thr	Ala	Leu	Val	Thr	Ala	410	415	420
Ala	Ala	Leu	Ala	Leu	Ile	Leu	Leu	Arg	Lys	Arg	Arg	Lys	Glu	Thr	425	430	435
Arg	Phe	Gly	Gln	Ala	Phe	Asp	Ser	Val	Met	Ala	Arg	Gly	Glu	Pro	440	445	450
Ala	Val	His	Phe	Arg	Ala	Ala	Arg	Ser	Phe	Asn	Arg	Glu	Arg	Pro	455	460	465
Glu	Arg	Ile	Glu	Ala	Thr	Leu	Asp	Ser	Leu	Gly	Ile	Ser	Asp	Glu	470	475	480
Leu	Lys	Glu	Lys	Leu	Glu	Asp	Val	Leu	Ile	Pro	Glu	Gln	Gln	Phe	485	490	495
Thr	Leu	Gly	Arg	Met	Leu	Gly	Lys	Gly	Glu	Phe	Gly	Ser	Val	Arg	500	505	510
Glu	Ala	Gln	Leu	Lys	Gln	Glu	Asp	Gly	Ser	Phe	Val	Lys	Val	Ala	515	520	525
Val	Lys	Met	Leu	Lys	Ala	Asp	Ile	Ile	Ala	Ser	Ser	Asp	Ile	Glu			

530					535					540				
Glu	Phe	Leu	Arg	Glu	Ala	Ala	Cys	Met	Lys	Glu	Phe	Asp	His	Pro
				545					550					555
His	Val	Ala	Lys	Leu	Val	Gly	Val	Ser	Leu	Arg	Ser	Arg	Ala	Lys
				560					565					570
Gly	Arg	Leu	Pro	Ile	Pro	Met	Val	Ile	Leu	Pro	Phe	Met	Lys	His
				575					580					585
Gly	Asp	Leu	His	Ala	Phe	Leu	Leu	Ala	Ser	Arg	Ile	Gly	Glu	Asn
				590					595					600
Pro	Phe	Asn	Leu	Pro	Leu	Gln	Thr	Leu	Ile	Arg	Phe	Met	Val	Asp
				605					610					615
Ile	Ala	Cys	Gly	Met	Glu	Tyr	Leu	Ser	Ser	Arg	Asn	Phe	Ile	His
				620					625					630
Arg	Asp	Leu	Ala	Ala	Arg	Asn	Cys	Met	Leu	Ala	Glu	Asp	Met	Thr
				635					640					645
Val	Cys	Val	Ala	Asp	Phe	Gly	Leu	Ser	Arg	Lys	Ile	Tyr	Ser	Gly
				650					655					660
Asp	Tyr	Tyr	Arg	Gln	Gly	Cys	Ala	Ser	Lys	Leu	Pro	Val	Lys	Trp
				665					670					675
Leu	Ala	Leu	Glu	Ser	Leu	Ala	Asp	Asn	Leu	Tyr	Thr	Val	Gln	Ser
				680					685					690
Asp	Val	Trp	Ala	Phe	Gly	Val	Thr	Met	Trp	Glu	Ile	Met	Thr	Arg
				695					700					705
Gly	Gln	Thr	Pro	Tyr	Ala	Gly	Ile	Glu	Asn	Ala	Glu	Ile	Tyr	Asn
				710					715					720
Tyr	Leu	Ile	Gly	Gly	Asn	Arg	Leu	Lys	Gln	Pro	Pro	Glu	Cys	Met
				725					730					735
Glu	Asp	Val	Tyr	Asp	Leu	Met	Tyr	Gln	Cys	Trp	Ser	Ala	Asp	Pro
				740					745					750
Lys	Gln	Arg	Pro	Ser	Phe	Thr	Cys	Leu	Arg	Met	Glu	Leu	Glu	Asn
				755					760					765
Ile	Leu	Gly	Gln	Leu	Ser	Val	Leu	Ser	Ala	Ser	Gln	Asp	Pro	Leu
				770					775					780
Tyr	Ile	Asn	Ile	Glu	Arg	Ala	Glu	Glu	Pro	Thr	Ala	Gly	Gly	Ser
				785					790					795
Leu	Glu	Leu	Pro	Gly	Arg	Asp	Gln	Pro	Tyr	Ser	Gly	Ala	Gly	Asp
				800					805					810
Gly	Ser	Gly	Met	Gly	Ala	Val	Gly	Gly	Thr	Pro	Ser	Asp	Cys	Arg
				815					820					825
Tyr	Ile	Leu	Thr	Pro	Gly	Gly	Leu	Ala	Glu	Gln	Pro	Gly	Gln	Ala

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	830		835		840
Glu His Gln Pro	Glu Ser Pro Leu Asn	Glu Thr Gln Arg Leu	Leu		
	845	850	855		
Leu Leu Gln Gln	Gly Leu Leu Pro His	Ser Ser Cys Ala Asp	Ala		
	860	865	870		
Ser Leu Lys Met	Ala Asp Pro Asn Arg	Phe Arg Gly Lys Asp	Leu		
	875	880	885		
Pro Val Leu					

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 cctgaacctg tggttaactgg 20

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